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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

DEAN, RAYMOND S

ART UNIT

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2618

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/661,196	Applicant(s) MOSTAFA ET AL.	
	Examiner Raymond S. Dean	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 March 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>0307</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, see remarks filed March 13, 2007 with respect to the rejection(s) of claim(s) 1, 15, and 27 under 35 U.S.C. 103(a) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of newly found prior art Rodman et al. (4,411,007).

Rodman teaches a synchronization and timing advance technique in which there is compensating for a fixed delay associated with the transport medium coupling the centralized radio processing portion and one of the remote air interface radio portions (Figure 1, Col. 4 lines 30 – 68, 5 lines 1 – 9).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1 – 12, 14 – 15, 18 – 25, and 27 – 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rimhagen et al. (US 6,594,245) in view of Rodman et al. (4,411,007).

Regarding Claim 1, Rimhagen teaches a method for use in a cellular communications system having a centralized radio processing portion (hotel) in communication with a plurality of remote air interface radio portions (RH) over a transport medium (Figures 1, 4, Column 6 lines 32 – 44, lines 62 – 67, WNC or Hub is the centralized radio processing portion, CSs or radio heads are the remote air interface portions), the method comprising: evaluating a time period corresponding to a variable delay between transmission by a mobile and receipt of the transmission by the centralized radio processing portion (Column 3 line 27, typical GSM systems monitor time periods corresponding to delay between transmission by mobile station and receipt of the transmissions for the purposes of time out), the mobile station communicating with the one of air interface radio portions, the communication being received by the centralized radio processing portion from the one of the remote air interface radio portions (Figures 1, 4, Column 6 lines 32 – 44, lines 62 – 67).

Rimhagen does not teach in the centralized radio processing portion, compensating for a fixed delay associated with the transport medium coupling the centralized radio processing portion and one of the remote air interface radio portions in evaluating a time period corresponding to a variable delay between transmission by a mobile and receipt of the transmission by the centralized radio processing portion.

Rodman teaches compensating for a fixed delay associated with the transport medium coupling the centralized radio processing portion and one of the remote air interface radio portions (Figure 1, Col. 4 lines 30 – 68, 5 lines 1 – 9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Rimhagen with the delay compensation circuitry of Rodman for the purpose of providing automatic timing compensation to correct for delay caused by temperature changes as taught by Rodman.

Regarding Claim 15, Rimhagen teaches a cellular communication system comprising: a host processing part (hotel) coupled to receive a communication over a transport medium from a remote air interface part (RH) (Figures 1, 4, Column 6 lines 32 – 44, lines 62 – 67, WNC or Hub is the centralized radio processing portion, CSs or radio heads are the remote air interface portions), the host processing part determining a time interval between transmission by a mobile station in communication with the remote air interface part (RH) and receipt of the transmission at the host processing part (Column 3 line 27, typical GSM systems monitor time periods corresponding to delay between transmission by mobile station and receipt of the transmissions for the purposes of time out).

Rimhagen does not teach the host processing part compensating for a fixed delay associated with the transport medium coupling the host processing part and the remote radio interface part in evaluating the time interval.

Rodman teaches compensating for a fixed delay associated with the transport medium coupling the host processing part and the remote radio interface part (Figure 1, Col. 4 lines 30 – 68, 5 lines 1 – 9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Rimhagen with the delay compensation

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circuitry of Rodman for the purpose of providing automatic timing compensation to correct for delay caused by temperature changes as taught by Rodman.

Regarding Claim 27, Rimhagen teaches a cellular communication system comprising: a host processing part coupled to receive a communication from a mobile station via a transport medium (Figures 1, 4, Column 6 lines 32 – 44, lines 62 – 67); and means for evaluating a time period associated with transmission from the mobile station in communication with a remote air interface part (Column 3 line 27, typical GSM systems monitor time periods corresponding to delay between transmission by mobile station and receipt of the transmissions for the purposes of time out), a transport medium coupling the host processing part and a the remote interface part (Figures 1, 4, Column 6 lines 32 – 44, lines 62 – 67)

Rimhagen does not teach means for compensating for a fixed delay associated with the transport medium coupling the host processing part and the remote radio interface part when evaluating a time period associated with transmission from the mobile station in communication with a remote air interface part

Halonen teaches means for compensating for a fixed delay associated with the transport medium coupling the host processing part and the remote radio interface part (Figure 1, Col. 4 lines 30 – 68, 5 lines 1 – 9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Rimhagen with the delay compensation circuitry of Rodman for the purpose of providing automatic timing compensation to correct for delay caused by temperature changes as taught by Rodman.

Regarding Claim 2, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claim 1. Rimhagen further teaches wherein the evaluating is determining a time out period associated with a call from the mobile station (Column 3 line 27, typical GSM systems utilize time out periods).

Regarding Claim 3, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claim 1. Rimhagen further teaches wherein the evaluating is for synchronizing calls by adjusting a transmission timing of the mobile station according to the evaluation of the time period corresponding to the variable delay (Column 6 lines 18 – 20).

Regarding Claim 4, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claim 1. Halonen further teaches subtracting out the fixed delay in a calculation of the time period corresponding to the variable delay (Col. 4 lines 54 – 57).

Regarding Claim 5, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claim 1. Rimhagen further teaches increasing a time period corresponding to receipt of the transmission at the one of the remote air interface radio portions, by a second time period corresponding to a fixed delay (Column 6 lines 18 – 20, the TA increases the time period, said increase comprises a plurality of time periods).

Regarding Claim 6, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claim 5. Rimhagen further teaches wherein the first time out period is a time out period within which the centralized radio processing portion expects

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a communication to be received by the one of the remote air interface radio portions (Column 3 line 27, typical GSM systems utilize time out periods).

Regarding Claim 7, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claim 6. Rimhagen further teaches wherein a call from the mobile station is dropped if the receipt of the communication from the mobile station is received after a third time period equal to the first plus the second time periods (Column 6 lines 18 – 20, the TA function can adjust to a plurality of time periods thus there will be a plurality of corresponding time out periods in which a call is dropped).

Regarding Claims 8, 29, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claims 5, 27. Rimhagen further teaches wherein the first time period is an adjustable timing advance time period used to avoid overlap in time slots with another mobile station (Column 6 lines 18 – 20).

Regarding Claim 9, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claim 1. Rimhagen further teaches the mobile station is provided with a timing adjust value independent of a fixed delay (Column 6 lines 18 – 20).

Regarding Claim 10, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claim 1. Rodman further teaches utilizing a calibrated value for the fixed delay (Col. 5 lines 10 – 13, the delay due to the temperature is the calibrated value).

Regarding Claims 11, 24, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claims 1, 15. Rimhagen further teaches wherein a plurality of remote air interface radio portions are coupled via the transport medium to

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the centralized radio processing portion (Figures 1, 4), and wherein the centralized radio processing portion accounts for a different fixed delay for each of the remote air interface radio portions (Figures 1, 4, each of the radio heads are at different distances from the WNC or Hub thus the propagation delay will be different).

Regarding Claims 12, 25, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claims 1, 15. Rimhagen further teaches further teaches wherein the transport medium is optical fiber (Column 3 lines 45 – 47).

Regarding Claim 14, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claim 1. Rimhagen further teaches supplying a base station controller (BSC) with the variable delay (Figure 1, Column 3 lines 40 – 42, WNC is acting as the BSC).

Regarding Claim 18, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claim 15. Rimhagen further teaches wherein the time interval is a sum of a first time period corresponding to receipt of the transmission at the remote air interface part and a fixed delay (Column 6 lines 18 – 20, the TA increases the time period, said increase comprises a plurality of time periods).

Regarding Claim 19, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claim 15. Rimhagen further teaches wherein the evaluating determines if the transmission from the mobile station was received within an allowable timeout period (Column 3 line 27, typical GSM systems utilize time out periods).

Regarding Claim 20, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claim 19. Rimhagen further teaches wherein the timeout period is

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evaluated by adding a fixed delay to the allowable time out period and comparing to the time interval (Column 6 lines 18 – 20, the TA function can adjust to a plurality of time periods thus there will be a plurality of corresponding time out periods in which a call is dropped).

Regarding Claim 21, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claim 19. Rodman teaches subtracting the fixed delay from the time interval (Col. 4 lines 65 – 68, 5 lines 1 – 9, compensating for the delay comprises subtracting the delay). Rimhagen further teaches comparing to the allowable time out period (Column 3 line 27, typical GSM systems utilize time out periods).

Regarding Claim 22, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claim 15. Rimhagen further teaches wherein the time interval corresponds to a timing advance time period summed with a delay, the timing advance period being used to avoid overlap in time slots with another mobile station (Column 6 lines 18 – 20).

Regarding Claim 23, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claim 15. Rodman further teaches wherein the fixed delay is a measured value (Col. 5 lines 10 – 13, the delay due to the temperature is a measured value).

Regarding Claim 28, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claim 27. Rimhagen further teaches wherein the timing period is a time out period associated with dropping a call if the communication is not received

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within the time out period (Column 3 line 27, typical GSM systems utilize time out periods).

4. Claims 13, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rimhagen et al. (US 6,594,245) in view of Rodman et al. (4,411,007), as applied to Claims 1, 15 above, and further in view of Burg et al. (US 6,427,075).

Regarding Claims 13, 26, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claims 1, 15. Rimhagen in view of Rodman does not teach wherein the transport medium is one of free state optical and microwave.

Burg teaches wherein the transport medium is microwave (Column 1 lines 21 – 24).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the microwave link as an alternative means of providing communication between the WNC and the radio heads.

5. Claims 16 – 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rimhagen et al. (US 6,594,245) in view of Rodman et al. (4,411,007), as applied to Claim 15 above, and further in view of Repice et al. (US 2003/0061422).

Regarding Claim 16, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claim 15. Rimhagen in view of Rodman does not teach a counter coupled to account for the fixed delay.

Repice teaches a counter coupled to account for the fixed delay (Section 0021 lines 18 – 21).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Rimhagen in view of Rodman with the counter of Repice as an alternative means of measuring propagation delay.

Regarding Claim 17, Rimhagen in view of Rodman teaches all of the claimed limitations recited in Claim 15. Rimhagen in view of Rodman does not teach wherein the counter is implemented in software.

Repice teaches wherein the counter is implemented in software (Section 0021 lines 18 – 21, the control interface is controlled by software).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the system of Rimhagen in view of Rodman with the counter of Repice as an alternative means of measuring propagation delay.


Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond S. Dean whose telephone number is 571-272-7877. The examiner can normally be reached on Monday-Friday 6:00-2:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward F. Urban can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Raymond S. Dean

May 8, 2007



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